

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 26 June 2001 (26.06.01)	
International application No. PCT/GB00/03799	Applicant's or agent's file reference REP06051WO
International filing date (day/month/year) 04 October 2000 (04.10.00)	Priority date (day/month/year) 04 October 1999 (04.10.99)
Applicant LEES, Richard et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 24 April 2001 (24.04.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Zakaria EL KHODARY Telephone No.: (41-22) 338.83.38
--	---

PATENT COOPERATION TREATY

PCT

REC'D 17 JAN 2002

WIPO

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

12

Applicant's or agent's file reference REP06051WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/03799	International filing date (day/month/year) 04/10/2000	Priority date (day/month/year) 04/10/1999
International Patent Classification (IPC) or national classification and IPC B24D3/00		
Applicant FREUDENBERG LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 24/04/2001	Date of completion of this report 15.01.2002
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Connor, M Telephone No. +49 89 2399 8402



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/03799

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-5 as originally filed

Claims, No.:

1-11 as received on 17/12/2001 with letter of 14/12/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/03799

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Remarks

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 The following documents were cited in the search report:

- D1 WO-97 07937 A (MINNESOTA MINING & MFG) 6 March 1997 (1997-03-06)
- D2 US- 5 025 596 A (HEYER RAYMOND F ET AL) 25 June 1991 (1991-06-25)
- D3: EP- 0 562 919 A (MINNESOTA MINING & MFG) 29 September 1993 (1993-09-29)

2 The abrasive material proposed in claim 1 of the present application is considered to be novel and inventive (Article 33(2)&(3)) PCT) for the following reasons.

2.1 Each of D1-D3 disclose an abrasive article comprising integral mass of discrete lengths of abrasive-coated non-woven synthetic fibres which are somehow bonded together by adhesive forces: in D1 a phenolic resin is used; D2 discloses a pad formed of continuous filaments having one end bonded together at one end of the pad and the opposite end of substantially all of the filaments bonded together at the opposite end of the pad; finally, in D3 a phenol-formaldehyde resin is used to bond the fibres together.

None of the fibre lengths comprised in the pads of D1-D3 are "substantially held together solely by entanglement forces". Even in D2, it cannot be said that the section of fibres comprised between two ends of a pad—which can be defined as lengths of fibres—are not held together by entanglement forces because (a) as clearly illustrated in Figure 2 of D2, the fibres are substantially parallel to each other, and they are therefore not entangled, and (b) they are held together because each of their end is secured at the bonding lines #21. The subject matter of claim 1 can therefore be considered as novel in view of D1-D3 (Article 33(2) PCT).

2.2 The subject matter of claim 1 is also considered to be inventive because the lack of an adhesive to hold the fibres of the web together allows the claimed abrasive article to be easily separated into user-defined quantities by tearing it apart by hand.

3 The subject matter of claims 9 and 10 is considered to be novel and inventive because none of D1-D3 suggest to manufacture an abrasive article including step (iv) of either claim. It is considered to be inventive as it allows the article of claim 1 to be manufactured which is itself considered to be novel and inventive (cf. point V-2

supra).

- 4.1 The subject matter of claim 11 is considered to be novel and inventive as an article produced according to claim 9 or 10 would clearly differentiate itself from the articles disclosed in D1-D3.
- 4.2 Claim 11, however, is considered to be redundant with claim 1 in contradiction with the requirements of conciseness set forth in Article 6 PCT (cf. point VIII-2 below).

Re Item VII

Certain defects in the international application

- 1 cf. point VIII-1.
- 2.1 On p. 3, l. 17, a preferred embodiment of the claimed process comprises in step (iii) to spray a slurry containing abrasive grain and binder. In the example, the slurry contains a filler which is different from the abrasive (cf. Table on p. 5). As no claim calls for, and no example illustrates the spraying of a slurry containing abrasive particles, lack of clarity arises and the description fails to support the claims (Article 6 PCT).
- 2.2 In point (iv) of the foregoing preferred embodiment on p. 3, the spreading step of abrasive particles is defined as optional, when both independent claims 9 and 10 comprise said step (referred to in the claims as (ii)) thus indicating that it is an essential feature of the claimed invention. The term "optional" shall therefore be deleted.
- 3 The term "density" in last line of p. 3 could be conveniently replaced by the term "titre" to define the weight per unit length of the fibres.

Re Item VIII

Certain observations on the international application

- 1 Claims 9 and 10 are not clear as **step (i)** described therein comprises spraying resin **and** binder on a fleece, when in the description a binder only (which is a resin) is sprayed onto the fleece (cf. p. 3, l. 17 (iii); and p. 4, ll. 5-8 and ll. 23-24). The same applies to the description p. 2, l. 6. The applicant is requested to chose one among

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/03799

the foregoing two terms and to delete the other.

- 2 Claims 1 and 11 are redundant as they call for the same product (unity requirements set forth in Rule 13.1 PCT), the former in terms of product technical features and the latter in terms of "product by process". The applicant is requested to chose between the two claims, claim 1 being preferred in view of Rule 6.3(a) PCT.
- 3 Claim 5 is not clear in the sense of Article 6 PCT in that the feature called for therein has no limiting effect on its subject matter as, given the right means, the strength of any material "is sufficiently low enough to allow separation into user-defined quantities."

Furthermore, the repetition of "sufficiently" and "enough" is considered redundant; the strength is either "sufficiently low" or "low enough".

CLAIMS

1. An abrasive material comprising an integral mass of discrete lengths, substantially held together solely by entanglement forces, of abrasive-coated non-woven synthetic fibres.
- 5 2. An abrasive material according to claim 1, wherein the lengths are each of individual fibres, a number of fibres bound together or strips of nonwoven fleece, wherein each strip has a width of between 2 and 10 mm.
3. An abrasive material according to claim 1 or claim 2, wherein the entanglement force between the said lengths is great enough to maintain a wad of the material when
10 in use but small enough to allow the product to be shaped in the hand of a user.
4. An abrasive material according to any preceding claim, which is deformable, and which is able to maintain its shape when deformed.
5. An abrasive material according to any preceding claim, having a strength sufficiently low enough to allow separation into user-defined quantities.
- 15 6. An abrasive material according to any preceding claim, which has substantially the same tear strength in all directions.
7. An abrasive material according to any preceding claim, wherein the abrasive is in the form of grains which are held in or on the fibres by a binder.
8. A method of abrading a surface, which comprises contacting the surface with
20 a wad of an abrasive material according to any preceding claim, wherein the wad is obtainable from a larger mass of the material having a sufficiently low strength to allow it to be separated into the wad, of a desired quantity, and a sufficiently high strength to maintain the wad of material when in use.
9. A method of manufacturing an abrasive material, comprising the steps of:
25 (i) spraying a nonwoven synthetic fibre fleece with resin and binder;
(ii) spreading the sprayed fleece with abrasive;
(iii) curing the binder; and
(iv) passing the resultant material to a fibre-opening machine to wholly or substantially separate the fibres from one another.
- 30 10. A method of manufacturing an abrasive material, comprising the steps of:
(i) spraying a nonwoven synthetic fibre fleece with resin and binder;
(ii) spreading the sprayed fleece with abrasive;
(iii) curing the binder; and
(iv) shredding the resultant material to produce thin strips of material.
- 35 11. An abrasive material obtainable by a method according to claim 9 or claim 10.

INTERNATIONAL SEARCH REPORT

Inte Application No
PCT/GB 00/03799

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B24D3/00 B24D3/28 B24D11/00 B24D15/00 D04H1/02
A47L17/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B24D D04H A47L C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 07937 A (MINNESOTA MINING & MFG) 6 March 1997 (1997-03-06) page 1, line 24 -page 2, line 11 page 3, line 11 - line 18 page 5, line 18 -page 6, line 18 page 11, line 5 -page 14, line 18 tables 1,2	1,8
A	US 5 025 596 A (HEYER RAYMOND F ET AL) 25 June 1991 (1991-06-25) column 3, line 18 - line 33 column 4, line 16 - line 24 column 7, line 7 - line 10; example III; table 1	9-11
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

19 December 2000

Date of mailing of the international search report

28/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Petrucchi, L

INTERNATIONAL SEARCH REPORT

Inte Application No

PCT/GB 00/03799

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 0 562 919 A (MINNESOTA MINING & MFG)</p> <p>29 September 1993 (1993-09-29)</p> <p>page 3, line 10 - line 23</p> <p>page 3, line 51 -page 4, line 2</p> <p>page 6, line 13 - line 22</p> <p>page 6, line 42 - line 55</p> <p>page 8, line 5 - line 9</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/03799

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9707937 A	06-03-1997	AU 6906896 A	19-03-1997
		BR 9609860 A	16-03-1999
		DE 29623899 U	27-07-2000
		EP 1005957 A	07-06-2000
		EP 1008420 A	14-06-2000
		EP 0847322 A	17-06-1998
		FI 980432 A	25-02-1998
		JP 11514936 T	21-12-1999
		US 5712210 A	27-01-1998
US 5025596 A	25-06-1991	US 4991362 A	12-02-1991
		AU 615796 B	10-10-1991
		AU 4141989 A	22-03-1990
		BR 8904613 A	24-04-1990
		CA 1314362 A	16-03-1993
		DE 68904508 D	04-03-1993
		DE 68904508 T	17-06-1993
		EP 0359495 A	21-03-1990
		ES 2037428 T	16-06-1993
		JP 1930776 C	12-05-1995
		JP 2124272 A	11-05-1990
		JP 6059631 B	10-08-1994
		KR 9614810 B	21-10-1996
		MX 171205 B	07-10-1993
		SG 63594 G	25-11-1994
		ZA 8906953 A	29-05-1991
EP 0562919 A	29-09-1993	US 5282900 A	01-02-1994
		DE 69302736 D	27-06-1996
		DE 69302736 T	05-12-1996
		ES 2089744 T	01-10-1996

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference REP06051W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 03799	International filing date (day/month/year) 04/10/2000	(Earliest) Priority Date (day/month/year) 04/10/1999
Applicant FREUDENBERG LTD. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 03 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT// 00/03799

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B24D3/00 B24D3/28 B24D11/00 B24D15/00 D04H1/02
A47L17/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B24D D04H A47L C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 07937 A (MINNESOTA MINING & MFG) 6 March 1997 (1997-03-06) page 1, line 24 -page 2, line 11 page 3, line 11 - line 18 page 5, line 18 -page 6, line 18 page 11, line 5 -page 14, line 18 tables 1,2 ---	1,8
A	US 5 025 596 A (HEYER RAYMOND F ET AL) 25 June 1991 (1991-06-25) column 3, line 18 - line 33 column 4, line 16 - line 24 column 7, line 7 - line 10; example III; table 1 --- -/--	9-11

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

19 December 2000

Date of mailing of the international search report

28/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Petrucchi, L

INTERNATIONAL SEARCH REPORT

International Application No

PCT/00/03799

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 0 562 919 A (MINNESOTA MINING & MFG) 29 September 1993 (1993-09-29) page 3, line 10 - line 23 page 3, line 51 -page 4, line 2 page 6, line 13 - line 22 page 6, line 42 - line 55 page 8, line 5 - line 9 -----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT//00/03799

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9707937 A	06-03-1997	AU 6906896 A BR 9609860 A DE 29623899 U EP 1005957 A EP 1008420 A EP 0847322 A FI 980432 A JP 11514936 T US 5712210 A	19-03-1997 16-03-1999 27-07-2000 07-06-2000 14-06-2000 17-06-1998 25-02-1998 21-12-1999 27-01-1998
US 5025596 A	25-06-1991	US 4991362 A AU 615796 B AU 4141989 A BR 8904613 A CA 1314362 A DE 68904508 D DE 68904508 T EP 0359495 A ES 2037428 T JP 1930776 C JP 2124272 A JP 6059631 B KR 9614810 B MX 171205 B SG 63594 G ZA 8906953 A	12-02-1991 10-10-1991 22-03-1990 24-04-1990 16-03-1993 04-03-1993 17-06-1993 21-03-1990 16-06-1993 12-05-1995 11-05-1990 10-08-1994 21-10-1996 07-10-1993 25-11-1994 29-05-1991
EP 0562919 A	29-09-1993	US 5282900 A DE 69302736 D DE 69302736 T ES 2089744 T	01-02-1994 27-06-1996 05-12-1996 01-10-1996